Department of Water Resources
California Irrigation Management Information System
Weather Station Siting Information

The placement of a weather station and the local environment of a weather station site can affect the utility and accuracy of ETo (calculated using the stations' weather data) for the area in which it is located. Buildings or trees close enough to a weather station can affect wind speed data, which in turn affects the resultant calculated ETo. The absence of a healthy green grass under a weather station can affect net radiation severely and humidity to some degree, which will adversely affect ETo. Bare soil instead of cropped land around the weather station can increase advected energy, increasing temperatures and decreasing humidities, which would increase the ETo value.

A CIMIS weather station should be located within the area that the station is meant to represent. The overriding factor in locating any CIMIS weather station is that the station location should be representative of the largest possible surrounding area. This will insure the most efficient use of weather stations for supplying accurate and applicable ETo information. The ideal site for a CIMIS weather station would be located in a 20-acre or larger pasture that is well maintained. The actual weather station would be located in the center of the pasture, inside a 10-yard to by 10-yard fenced enclosure. Inside the enclosure, the grass would also be well maintained (properly irrigated and fertilized) and mowed frequently to maintain a height between three to six inches.

It is often very difficult to find such a site for a new weather station. In some areas, there are few pastures. Also, if a pasture is found, the landowner must agree on allowing a weather station to be sited there. DWR has prepared, with the help of UC, the following criteria or guidelines to be used to find and judge sites for CIMIS weather stations when an ideal pasture cannot be found.

Regional and Local Criteria

1. A station should be sited within the region it is meant to represent.
2. Avoid locating a station in a transition area between two regions of distinct climates unless you are attempting to characterize that transitional area.
3. Topographic depressions should be avoided, as the temperature is frequently higher during the day and lower at night. High points should also be avoided in most cases.
4. There should be a long-term commitment to maintain the same land use in and around the site, to avoid moving the station in the future.

Surrounding Environment Criteria

1. Avoid wind obstructions within 100 yards of the site. Avoid linear obstructions (windbreaks, buildings) within 150 yards perpendicular to the direction of the prevailing wind.
2. Avoid placing a station in a field where there are frequent rotations of crops, because between crops the field will have bare soils.
3. Avoid abrupt crop/vegetation changes (i.e. pasture to row crops) within 50 yards of site, or 100 yards upwind of site.
4. Avoid roads within 50 yards of the site. Unpaved roads should be no closer than 100 yards upwind of the site.
5. Small rivers should be no closer than 100 yards of the site and larger rivers should be no closer than 200 yards of the site. Lakes should be no closer than 1,000 yards of the site.
6. Avoid areas where extensive or frequent use of agricultural chemicals are used (can cause increasing degradation of sensors).

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Other General/Desireable Criteria

1. Site should have nearby dwellings (no closer than 100 yards) to reduce risk of vandalism.
2. The station enclosure should be a 10-yard by 10-yard by five-foot high fence, livestock-tight where necessary. The posts, boards and fencing material should not affect wind nor shade any instruments.
3. Site should have unrestricted access, seven days a week. There should be vehicle access to the site enclosure (except when wet).
4. Site should be close to existing telephone lines (within 150 yards) for economical connections.
5. There should be local personnel (private or public) to help maintain the site to meet DWR's requirements.

Many of the weather stations sites in the CIMIS network are not the ideal large pasture situation. Some of these stations do not meet all of the above siting criteria. These sites will be upgraded if possible or relocated to a better quality site in the future. Specific information on each CIMIS site can be found in "Weather Stations" under menu item "Station Description".